



CONSUMERS' MOTIVATION TO REDUCE FOOD WASTE – A quantitative study on young adult's motivation and actions to reduce food waste

Susanna Pietilä

International Business
Bachelor's Thesis
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Objectives

The main objectives of this paper are to explore how motivated young adult consumers are to reduce food waste. It also aims at finding which factors motivate consumers most and understanding how they can be motivated using this information. In addition, different actions that consumers can take to reduce food waste are analysed.

Summary

This paper focuses on young adult consumers motivation to reduce food waste. The paper attempts to find which factors particularly help consumers reduce food waste, and how consumers could be motivated even more. Conceptual framework was created to explore the relationship between motivation and food waste levels and then operationalized with an online survey. The results indicated that young adult consumers are aware of their responsibility to reduce food waste and environmental motivators predict lower food waste levels than other motivators.

Conclusions

Most young adult consumers are motivated to reduce food waste and they also acknowledge that they are responsible for reducing food waste. Food waste is considered mostly moral issue although moral motivators do not predict reduced food waste levels. In fact, environmental motivators predicted reduced food waste levels and play the biggest role when designing motivation programs. Also, young adults felt that re-using leftovers and better shopping planning would be the most helpful ways to reduce food waste.

Key words: *food waste, motivation, consumer behaviour, responsibility, sustainable development*

Language: English

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ABSTRACT

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1. INTRODUCTION

1.1. Background

Waste is one of the issues that have become global problem. Food waste is one of the biggest categories of waste beside plastic, for example. Huge amounts of food are wasted from farm to plate. However, in Western countries, a lot of food is wasted by consumers (Parfitt et al., 2010). The supply of food is bigger than ever, food is relatively cheap, and people have more disposable income. Lack of caring among other factors results in wasted food.

This paper contributes to the study of consumer produced food waste. The objectives of the paper are to examine how motivated consumers are and how they can be motivated more. This paper starts with defining the research problem, questions and objectives. Then, it discusses the existing literature, and based on those discussions a conceptual framework is created. The conceptual framework is tested using an online survey. Lastly, the findings are discussed, and a conclusion is drawn.

1.2. Research Problem

About 1.3 billion tonnes of food is wasted every year all around the globe (FAO, 2018). In Finland, food losses amount approximately 150 million kilograms per year. Food waste has negative effects on the economy and the environment (FAO, 2013). In addition, food waste is often considered moral and social problem (Parizeau et al., 2015) rather than environmental issue. Food is lost in every stage of the food supply chain, but the biggest losses are in the last stage where the food is in consumer's hands (Secondi et al., 2015).

That's why it is important that consumers are motivated to change their behavior and attitudes towards food. Yet, not everyone is ready to make a change although they want it. This means that there is a need for a study to find out which factors motivate consumers the most to reduce food waste and which action can be taken to help them.

1.3. Research Questions

In short, the paper addresses the following research questions:

RQ1: How young adult consumers relate themselves to food waste?

RQ2: What are the grounds of motivation to reduce food waste and how this can be used to motivate young consumers more?

RQ3: What actions can be taken to reduce food losses?

1.4. Research Objectives

The research objectives of this study are the following:

RO1: To explore what motivates young adult consumers to reduce food waste.

RO2: To find how young adult consumers can be motivated to reduce food waste.

RO3: To define different actions that young adult consumers can take to reduce food waste.

2. LITERATURE REVIEW

2.1. Introduction

It is estimated that globally one-third of all food produced for consumption is wasted (FAO, 2013). This leads to wasted resources that could have been used otherwise. Most losses in developed countries occur in the last stage of the food supply chain (FSC) where consumers are responsible for food (Parfitt et al., 2010). In Finland, about 30% of food waste is caused by consumers (Luke, 2016) whereas in the USA, the amount is over 40% ('Food wasted by weight - 63 million tons', 2019). Consumer facing businesses, for example stores and restaurants, produce about 40% of food waste both in the USA and in Finland. Manufacturers and farmers share the remaining percentage. This points out the need for further study on consumers' connection to food waste.

Food waste has many negative impacts on environment (FAO, 2013). For instance, in 2010 wasted food lead to approximately 17 million tonnes of CO₂ equivalent (WRAP, 2011). Food waste also has economic and social impacts that are considered harmful (Godfray et al., 2010; Parfitt et al., 2010; Stefan et al., 2013; Graham-Rowe et al., 2014; Parizeau et al., 2015). For example, in 2010 the value of avoidable food waste was £2.5 billion in the UK (WRAP, 2011). That is why food waste prevention and reduction programs are important and discussed more lately.

Food waste has received more attention recently. The literature has increased significantly in the 21st century. More closely, in the past five years food waste has been researched broadly (Schanes et al., 2018). However, there is still gaps in knowledge. The literature focuses mostly on the drivers of food waste. There is some literature that concentrates on the factors that motivate people to reduce food waste, but further research on the topic is needed.

The purpose of this literature review is to create a foundation for the research that will be conducted in order to study which motivators particularly motivate young adult consumers. The literature review focuses on the literature dealing with household food waste and its implications. It will also cover the different causes behind food waste. In addition, consumers' motivation and food waste prevention actions are covered. Lastly, the conceptual framework is created based on the existing literature and explained.

2.2. Food waste definition

There are multiple ways to define food waste. For example, culture affects the definition since some parts of the food are considered waste in some countries but not in others (Gjerris and Gaiani, 2013). According to Food and Agriculture Organization of the United Nations (2013), food waste “refers to food appropriate for human consumption being discarded, whether or not after it is kept beyond its expiry date or left to spoil”. Food waste can also be divided into two sub-sections: avoidable food waste and unavoidable food waste. Stenmarck et al. (2011) have defined them as follows: Avoidable food waste “often has the meaning disposed food that could have been consumed if managed differently” (for example slices of bread or plate residues). On the other hand, they argue that unavoidable food waste is “animal or vegetal waste that originates from food but it is not likely that humans will eat it (bones, peelings etc.)”. However, in this literature review the term “food waste” is used and not divided into avoidable and unavoidable to make it more generalized.

2.3. Impacts

Food waste has several environmental, economic and social impacts (Graham-Rowe et al., 2014). That is why food waste has received more attention in recent years. Next three sections are dealing with the different consequences of food waste and how they are noticed in the literature.

2.3.1. Environmental impacts

According to FAO (2013) food waste has a negative impact on carbon footprint, water footprint, land use and biodiversity. The report states that some commodities (cereals, meat and vegetables, for instance) contribute significantly more to carbon footprint than others (pulses and seafood, for example). It also indicates that in the consumption stage in the FSC the carbon footprint of food wastage is the greatest.

The FAO's report (2013) shows that cereals and fruits are also significant contributors to the water footprint of food waste whereas meat and milk are major contributors to the land occupation of food waste. When it comes to biodiversity, agriculture is mainly responsible for reducing diversity. However, there are major regional differences in terms of threat since it is higher in developing countries compared to developed countries.

As can be concluded, the environmental impacts are significant. However, it has also been indicated that the environmental impacts influence consumer's motivation to reduce food waste only a little (Neff et al., 2015). Also, Hebrok and Boks (2017) claim that financial considerations, for example, have greater impact on consumer's motivation than environmental considerations. Parizeau et al. (2015) found in their study that most consumers see food waste as a social problem rather than as an environmental problem. Nevertheless, the environmental consequences cannot be ignored.

2.3.2. Economic impacts

Economic losses caused by wasted or lost food are significant. The economic costs are borne in every stage of FSC by the consumers, suppliers (for example, retailers and restaurants), manufacturers and farmers (Parizeau et al., 2015). In developing countries, the cost amounts to approximately US\$ 310 billion every year whereas in industrialized countries, the amount is about US\$ 680 billion (FAO, n.d.). According to Secondi et al. (2015), an average UK household wastes £420 per year because they throw food away. In Finland, one person wastes almost 130€ every year (Hautamäki, 2017).

As can be seen, the amounts have some variation. Consuming and wasting behaviour differ from one country to another but also the metrics that are used to calculate the amount of food waste (Thyberg and Tonjes, 2016). There are also definitional issues that disrupt the quantification methods (Parfitt et al., 2010). Therefore, there is a need for actions to create globally coherent quantification methods to be able to better measure the amounts of food waste and economic losses.

2.3.3. Social impacts

In addition to environmental and economic impacts, food waste also has social impacts that need to be addressed. Food waste is closely related to issues with food security (FAO, 2011). Almost 800 million people are not getting enough nutritious food and many of them live in developing countries (McGuire, 2015). FAO's study shows also the fact that although the world's population has increased, the amount of undernourished people has decreased significantly from 1990 to 2015.

In addition to food security problems, another issue is the fact that food is distributed unevenly. In industrialized countries, the supply of food is much more than in developing countries leading to social inequality (Parizeau et al., 2015). However, the quantities of wasted food are almost the same in developed and developing countries, 670 and 630 million tonnes, respectively (FAO, n.d.).

Another problem is the growing population and feeding them (Godfray et al., 2010; Parfitt et al., 2010). Godfray et al. (2010) suggest that wasted food could be used to feed the future population of 9 billion people. Also, Parfitt et al. (2010) thinks that industrialized countries could develop the FSC to respond to the future's problems.

These impacts indicate that there is an urgent need for further actions to prevent food waste both in developed and developing countries, but especially in developing countries. Nevertheless, sustainable development and food waste reduction is already set as a goal globally which tells not only about "a trend" but also about changing values and attitudes among societies. Countries adopted the United Nations' 17 Sustainable Development Goals in 2015 (www.un.org). Goal 12 is about "ensuring sustainable consumption and production" and the third target under the goal is to "halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses by 2030" (www.un.org).

2.4. Causes of food waste

There are multiple reasons found in the literature why people waste so much food. Most drivers are related to consumer behaviour (Koivupuro et al., 2012; Stefan et al., 2013; Graham-Rowe et al., 2014; Farr-Wharton et al., 2014; Aschemann-Witzel et al., 2015; Parizeau et al., 2015; Visschers et al., 2016; Hebrok and Boks, 2017). Other factors that have an impact are attitudes (Stefan et al., 2013; Parizeau et al., 2015; Thyberg and Tonjes, 2016), culture (Gjerris and Gaiani, 2013; Neff et al., 2015; Thyberg and Tonjes, 2016) and lack of knowledge (Gjerris and Gaiani, 2013; Farr-Wharton et al., 2014; Aschemann-Witzel et al., 2015; Van Geffen et al., 2016). However, there are some disagreements, for example whether the socio-demographic factors have an influence in food waste behaviour (Koivupuro et al., 2012; Parizeau et al., 2015; Secondi et al., 2015; Thyberg and Tonjes, 2016; Visschers et al., 2016). Also, the economic situation and food prices affect food waste

levels (Godfray et al., 2010; Thyberg and Tonjes, 2016). The next section will discuss these most common food waste drivers in the literature.

2.4.1. Consumer behaviour

One of the most discussed drivers of food waste in the literature is consumer behaviour which in this case includes for example planning, purchasing, shopping habits, storing and preparation. Koivupuro et al. (2012) states that one common reason for food waste is simply buying too much food which is then left without using and discarded. In addition, Aschemann-Witzel et al. (2015) have found that people purchase too much food due to volume discounts, for example. Buying too much food is also related to failing to comply with shopping list, impulse shopping and lack of planning (Graham-Rowe et al., 2014; Aschemann-Witzel et al., 2015; Hebrok and Boks, 2017).

Besides purchasing, also false storing causes food waste (Koivupuro et al., 2012; Farr-Wharton et al., 2014; Aschemann-Witzel et al., 2015; Neff et al., 2015; Hebrok and Boks, 2017). Usually, it's due storing food under sub-optimal conditions (Koivupuro et al., 2012). It seems that people have lack of knowledge how to store certain items correctly (Aschemann-Witzel et al., 2015). For example, people store food in too cold refrigerators or store vegetables or fruits incorrectly and this leads to wasting food. On the one hand, Visschers et al. (2016) have not found correlation between storing know-how and the amount food wasted. On the other hand, Schanes et al. (2018) suggest that knowledge about storage may still affect food waste behaviour indirectly through personal attitudes, for example.

In addition to buying too much food, consumers tend to prepare too much food which is then stored as leftovers (Hebrok and Boks, 2017) or thrown away (Graham-Rowe et al., 2014). Usually, leftovers are discarded because they are misplaced or forgotten (Farr-Wharton et al., 2014; Schanes et al., 2018). Sometimes people estimate food's edibility incorrectly which leads to food being wasted (Farr-Wharton et al., 2014). Studies show that the more criteria people use to estimate edibility, the more they waste food (Farr-Wharton et al., 2014; Parizeau et al., 2015). According to Koivupuro et al. (2012), people waste leftovers since they are not satisfied with the taste, freshness or they just do not want to eat same food

many times. It can be concluded that some food waste could be avoided if people planned more carefully and were aware of the amount of food they have in the storage.

2.4.2. Culture and attitudes

Another factor causing food waste is surrounding culture and people's attitudes. Culture and personal attitudes affect people's perceptions of what is too good to be thrown away and what is not (Thyberg and Tonjes, 2016). Pollan (2007) cited in Thyberg and Tonjes (2016: 117) notes that some cultures have weaker food traditions than others, meaning that people can eat whatever and whenever they want. He also claims that some people have a weak connection between the production of the food and its consumption which leads to people not caring about food and attitudes that it is acceptable to waste food. This might be one of the consequences of globalization. Also, fewer people are employed in agriculture (Parfitt et al., 2010) and urbanization increases the gap between consumers and food producers (Thyberg and Tonjes, 2016). This leads to a decrease in consumers' appreciation of food. In addition, Pudal & Westenhofer (1988) cited in Gjerris and Gaiani, (2013: 8-9) identified that one of the explanations for food waste is "loss of social and emotional linkage to food". They argued that families do not eat together anymore, and the family recipes are no longer shared. Lack of deep connection to food results in consumers considering food only a product rather than something vital (Gjerris and Gaiani, 2013). According to Thyberg and Tonjes (2016), countries with deep food culture tend to respond slower to changes which can affect food waste behaviour.

In addition, culture of consumerism influence food waste (Gjerris and Gaiani, 2013; Aschemann-Witzel et al., 2015). It encourages consumers to buy more food than they really need. Prices are low, the supply of food is greater than ever, and you can buy food at any time. This results in increasing amount of consuming without people considering the possible waste and its consequences (Aschemann-Witzel et al., 2015).

Also, daily shopping habits differ between cultures. There are differences in the amount of food purchased in a single shopping trip, the number of days between the trips and the amount of food stored in home (Neff et al., 2015). In addition, Jörissen et al. (2015) claim that especially the size of the grocery store visited and the frequency of shopping trips influence food waste levels.

Culture also shapes our attitudes towards food waste. However, there is no clear consensus on attitudes towards food waste even though it has been shown that for example food waste awareness reduces food waste (Parizeau et al., 2015). In addition, actual attitudes are also hard to measure since they are usually self-reported (Neff et al., 2015). On the other hand, changing attitudes may affect one's behaviour significantly which may lead to decrease in food waste.

2.4.3 Socio-demographic factors

There is a lot of debate in the literature whether the socio-demographic factors, for instance gender, age and household size, influence food waste. Koivupuro et al. (2012) found in their study that gender might be a considerable factor since the households where female was responsible of groceries produced more food waste than the ones where male was responsible for shopping. Buzby and Guthrie (2002) cited in Secondi et al. (2015: 28) claims that females waste more food. However, Barr (2007) suggests that females are more likely to reduce food waste compared to males. This leaves a gap to literature and a need for further research on gender's influence in food waste.

Another factor suggested that contributes to food waste is age. It seems that younger consumers waste more than older (Hamilton et al., 2005; WRAP, 2009). However, Koivupuro et al. (2014) did not find any correlation between age and food waste primarily due to low number of older people in their sample. On the other hand, Jörisen et al. (2015) found that people aged over 65 seem to waste significantly less than other age groups. This may be due to their experiences with food shortage, for example World War Two, or with higher prices (Visschers et al., 2016).

Studies show that also money usage affects food waste. Neff et al. (2015) did not observe relationship between income and food waste. Although Koivupuro et al. (2012) did not either found clear correlation with household income level, they noticed that consumers who do not buy discounted products tend to waste more. Partiff et al. (2010) suggest that wealthy households waste more than low income households simply because they can afford that. Parizeau et al. (2015) also found that households that spent more money on groceries also tended to waste more. So, it seems that income itself does not play as big role as the portion of the income spend on food.

One characteristic found in the literature is household size. Many studies suggest that the bigger the household size, the bigger the amount of waste (Koivupuro et al., 2012; Quested et al., 2013; Parizeau et al., 2015). Also, households with more children tend to waste more (Parizeau et al., 2015). Nevertheless, Quested et al. (2013) noticed that larger households waste less per capita.

In addition, area of residence seems to have an effect. Secondi et al. (2015) states that people living in urban areas tend to waste more compared to people living in rural areas. However, Koivupuro et al. (2012) did not observe any significant correlation between food waste and the area of residence.

2.4.4 Knowledge

Lack of knowledge is also suggested to be one of the key drivers of food waste. Farr-Wharton et al. (2014) claim that there are three aspects of knowledge that cause food waste: “current household food supply knowledge, current household food item location knowledge and food literacy”. Pudiel & Westenhofer (1988) cited in Gjerris and Gaiani, (2013: 8-9) have also created four factors that can explain food waste: “Devaluation, lack of knowledge about food identity, lack of knowledge about the origin of food and loss of social and emotional linkage to food”. So, it seems that knowledge influence consumer behaviour, but it does not completely explain it.

2.4.5 Economic situation

Wealthy countries (and households) waste more food simply because they can afford to it (Pearson et al., 2013). Also, the portion of income spend on food has reduced as well as the food prices (Thyberg and Tonjes, 2016), so consumers do not regard food waste as a waste of money that much anymore. According to Godfray et al. (2010), economic situation affects food prices, for example the oil crisis in 1970s caused temporary increases in food prices. So, when people must use more money on food, they also tend to waste less.

2.5. Motivators to reduce food waste

Motivation can be defined as “a reason or reasons for acting or behaving in a particular way” or “desire or willingness to do something; enthusiasm” (Oxford Dictionaries, n.d.). Van Geffen et al. (2016) claims that lack of motivation is one of the biggest barriers to reduce food waste. Based on the causes and implications of food waste, literature has suggested different things that increase consumers’ motivation to reduce food waste. In this literature review, motivators are divided into four categories: environmental, economic, social and moral motivators.

2.5.1 Environmental motivators

Many studies show that people have environmental concerns (Graham-Rowe et al., 2014, Neff et al., 2015; Visschers et al., 2016). However, interestingly they still are not motivated by environmental concerns (Graham-Rowe et al., 2014; Neff et al., 2015; Hebrok and Boks, 2017). Neff et al. (2015) reported that only 22 percent of respondents of their survey said that environmental concerns were “not at all important” motivation. So, targeting the food waste reduction campaign the environmental conscience of people may appear ineffective (Hebrok and Boks, 2017).

2.5.2 Economic motivators

Some people consider wasting food the same as wasting money (Hebrok and Boks, 2017). Economic motivators, for example saving money, is broadly argued to be one of the key motivators to reduce food waste. (Quested et al., 2013; Graham-Rowe et al., 2014; Neff et al. 2015; Thyberg and Tonjes, 2016). Also, it has been investigated that consumers are more concerned about the economic impacts of food waste compared to the environmental impacts (Parizeau et al., 2015). Hebrok and Boks (2017) also found evidence for the financial concerns being bigger motivation than environmental concerns. This also gives information about people’s values.

2.5.3 Moral motivators

Stefan et al. (2013) argues that moral attitudes are important contributor to food reduction motivation. This includes for example guilt about wasting food (Quested et al., 2013;

Parizeau et al., 2015). Neff et al. (2015) argue that guilt can act as an important motivator. In addition, “doing the right thing” motivates consumers (Graham-Rowe et al. 2014). Quested et al. (2011) cited in Parizeau et al. (2015: 215) found that people are also concerned about the food shortage elsewhere. Watson and Meah (2012) cited in Schanes et al. (2018: 981) claims that the avoidance of food waste is mainly driven by the responsible use of resources.

2.5.4 Social motivators

Another category is social motivators. Lyndhurst (2007) cited in Hebrok and Boks (2017: 383) argues that especially women feel guilty when throwing food away since it gives an image of them not being good at managing the household and providing the family. Quested et al. (2011) cited in Parizeau et al. (2015: 215) found that 68 per cent of respondents considered “efficient home management” a great motivator to reduce food waste. Also, Graham-Rowe et al. (2014) found that people want to be “good providers” or “good hosts” so they tend to over-purchase to fulfil this role. This can be seen as a barrier to reduce food waste. However, acknowledging the “good provider identity” might be helpful for the waste reduction planning.

2.6. Actions

When compared to other waste management approaches, food waste reduction has the highest economic, social and environmental benefits (Thyberg and Tonjes, 2016), so it is worth it. When planning an action plan to increase motivation to reduce food waste levels, the causes of food waste and its implications are good to keep in mind. Also, different types of motivators must be considered. Based on these considerations, different policies, campaigns and technologies for example, can be developed to help consumers.

Many authors consider education and increasing the awareness among consumers necessary in the prevention of food waste (Gjerris and Gaiani, 2013; Farr-Wharton et al., 2014; Aschemann-Witzel et al., 2015; Neff et al., 2015; Thyberg and Tonjes, 2016). Education should cover topics about food purchasing and planning, food preparation and reuse, portion sizes, storage and stock management, data labels, and food safety (Thyberg and Tonjes, 2016). Nevertheless, Aschemann-Witzel et al. (2015) state that the information

should be repeated since consumers tend to forget, and it should be delivered via various sources since people rely on different sources. They also emphasize that increasing awareness of the issue overall is important.

Researchers emphasize different things when planning the interventions. Stefan et al. (2013) highlight that the actions should focus on changing consumers' routines or their attitudes towards food waste. Graham-Rowe et al. (2014) claim that the actions should emphasize the benefits of reducing food waste, for instance saving money, but also the fact that reducing food waste is the right thing to do. Visschers et al. (2016) state that interventions should concentrate on increasing consumers' perceived behavioural control over food waste.

2.7. Conceptual framework

The following conceptual framework (Figure 1) is formed based on previous research discussed in this literature review. The framework illustrates how the four different motivators found in the literature (economic, environmental, moral and social) affect the motivation to reduce food waste. These four motivators are affected by consumers' attitudes, values, knowledge and culture. Motivation to reduce food waste affects further the actions taken by the consumer. Eventually, these actions affect food waste levels. The linear structure of the model and arrows show the direction of influence. In this study, the theoretical framework is then operationalised as an empirical set up in where a survey is conducted to study whether young adult consumers are motivated to reduce food waste and which motivators found in the literature are the most important to young adult consumers. The survey also tries to find out which actions are the most helpful for the young adult consumers to reduce food waste.

Food waste management behaviour

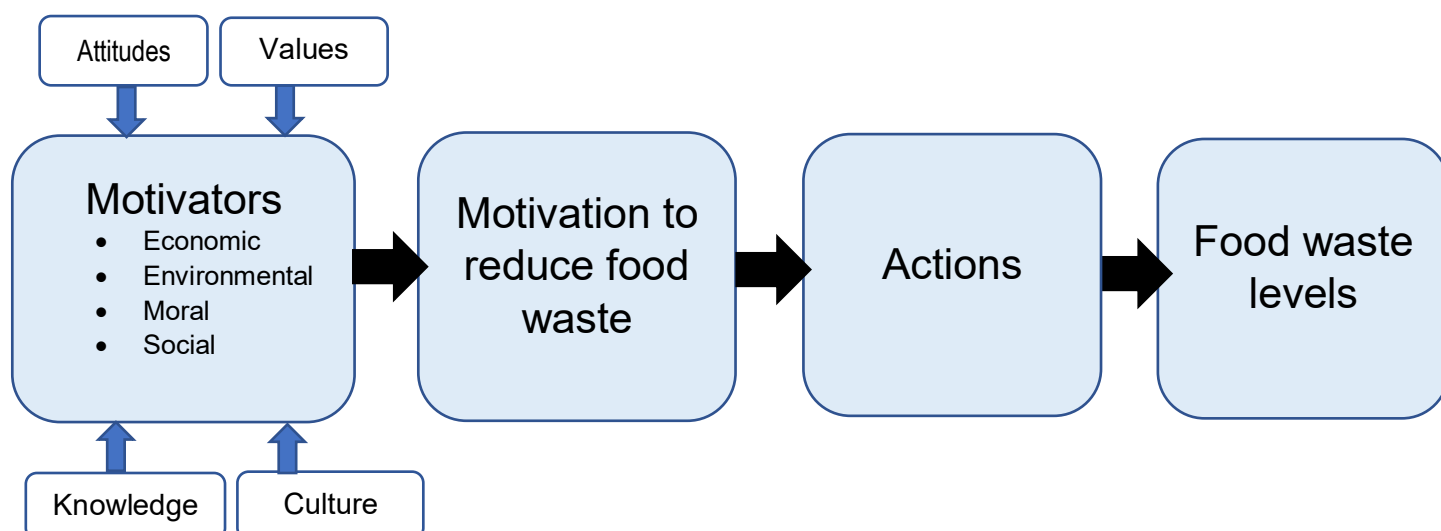


Figure 1. Conceptual Framework

2.8. Conclusion

The causes of food waste is widely researched topic. Researchers have found many factors that cause food waste. However, it is uncertain which factors affect food waste levels the most. One of them is, nevertheless, motivation. There are studies that emphasize the importance of motivation, so it cannot be ignored.

This leads to situation where further research on how consumers can be motivated is needed. Literature has suggested different strategies to increase motivation but there is not enough information to estimate which one of them is the most effective strategy. Further research would benefit all the actors in the food supply chain.

3. METHODOLOGY

As the literature review suggest, there are some gaps in literature. Based on these gaps on consumer motivation and different motivators five hypotheses were drawn to examine the young adult consumers motivation and the factors affecting it.

H1: Gender affects the estimations of the amount of food waste produced annually.

H2: Young adult consumers who recycle are more motivated to reduce food waste.

H3: Young adult consumers who have had a job where they had to deal with food are more motivated to reduce food waste than the ones who have not.

H4: Household size affects the estimations of the amount of food waste produced annually.

H5: Young adult consumers who follow special diet produce less food waste than the ones who do not follow any special diet.

H6: Economic motivators are the most important motivators to reduce food waste among young adult consumers.

The next sections discuss primary data and secondary data and the relationship between them. In addition, the online survey is introduced and the sample of the research. Lastly, the data analysis is covered.

3.1. Methodological approach

Survey research was chosen to be the methodological approach of this thesis. Survey was used to collect primary data. In general, Check & Schutt (2012) cited in Ponto (2015, 168) defined survey research as "the collection of information from a sample of individuals through their responses to questions". Usually, survey research is used to describe and explore characteristics of large sample of individuals relatively quick (Ponto, 2015), for example consumer behaviour. Survey research can use quantitative or qualitative strategy depending on the structure of the questions asked in the survey (Ponto, 2015). The use of numerically rated items, for example Likert-scale, (structured question) refers to quantitative method whereas open-ended questions (unstructured questions) refer to qualitative research.

Identifying the population of interest is vital for the research. There are different sampling methods, but the most important thing is to gather a large enough sample that has similar

characteristics of the entire population of interest (Ponto, 2015). By doing this one of the most common errors (sampling error) in survey research can be avoided. Also, the data can be collected many ways, questionnaires and interviews being the most important ones. Both can be conducted face-to-face or virtually, for example via email. Questionnaires can be conducted without an administrator, but interviews cannot which is one reason for them being time consuming and costly.

3.2. Data collection

Both primary data and secondary data was collected for the purposes of this thesis. Secondary data was collected using Google Scholar and Aalto Finna. It was discussed and analysed broadly in the literature review section of this thesis. Secondary data provides basis for the need for further research on this topic. In addition, the conceptual framework was created based on the previous literature and theories. The primary data was collected using an online survey. The conceptual framework was then tested empirically using the survey.

A quantitative method in a form of an online questionnaire was chosen for the primary research since it was the most suitable option considering the nature of the thesis and its research objectives. Survey is a common tool used when conducting a consumer related research (Acevedo, 2019). Also, many previous studies had also used surveys to gather primary data. The survey also provides more structured information from larger amount of people than for example interviews. Compared to questionnaire, interviews would have provided more in depth-knowledge on the research topic, but the focus on this study was to collect more general knowledge about consumer food waste management behaviour. In addition, online questionnaire is less time consuming. The online form was chosen simply because it is nowadays the most convenient way to gather data from large amount of young adults.

Convenience sampling was chosen as a sampling method due to time and resource constraints. The survey was created using Webropol survey tool. The survey was tested with a few respondents to avoid misunderstandings and ambiguousness and to see how much time it takes to complete it. The survey was shared to all students studying in Aalto Mikkeli campus including also third year students that are currently on exchange via email.

After the survey link being open for a week, the link was also shared to Facebook page called 'What's cooking Probba?' The members of the page consist of current and old students from Aalto Mikkeli campus. In addition to Facebook, the link was shared in Whatsapp to a group chat where the members are from different business schools from all around Finland. These channels were chosen to ensure enough data from the target group is collected. The survey was open from February 4th, 2019 to March 2nd, 2019. All the participants were informed the purpose of the survey and the fact that the responses were confidential and anonymous. The participation was voluntary.

3.3. Survey design

The survey used in this thesis and discussed in this section can be found in Appendix 1. The first page of the survey included the information about the survey, for example the purpose of it and length. After the info, the survey had a photo of a hamburger meal to attract the respondent to continue the survey. After the photo, gender, age and nationality were asked.

The second page asked the respondents to state the number of people that are living in the same household. Also, the survey asked if the participant followed any special diet. If the answer was 'Yes', the respondent was asked what special diet he/she followed. If the answer was 'No', the survey skipped the further question and moved to page four where the respondent was asked if they have had a job where they had to deal with food. In the same page was also a question 'Do you recycle?'. Here again, if the respondent answered 'Yes', he/she was asked further question to find out what they recycled. If the answer was 'No', the further question was skipped, and respondent moved right to question considering the estimation of the amount of food waste produced annually.

The seventh page started with a question that asked participants to think who is the most responsible for reducing food waste. They were able to choose maximum three subjects from total of six subjects (consumers, stores, restaurants, food manufacturers, farmers, government).

The page number eight had two questions. The first question simply asked if the respondent was motivated to reduce food waste. The second question in this page asked respondent to

consider whether they see food waste mostly as environmental, economic, social or moral issue. They had to rank options from the least accurate to the most accurate.

The last two pages both included several statements that respondent was asked to rate using a five-point Likert-type scale. The first rating question was about rating the level of importance with different motivators to reduce food waste and it consisted of nine statements. The options ranged from 'Not at all important' to 'Extremely important'. The next set of statements consisted of eleven statements that asked respondent to rate the helpfulness of different actions to reduce food waste. The options ranged from 'Not at all helpful' to 'Extremely helpful'. The question was copied from the survey Secondi et al. (2015) conducted but modified to fit this survey and its purposes better. The original question included only seven statements, but four statements were added to collect more information about helpfulness of some additional actions (mobile apps, food campaigns, regulations and policies, other actions). Also, some statements were worded differently so they would be easier to understand.

3.4. Sample

As mentioned already in the section 3.1, convenience sampling was used to collect data in this research. All respondents participated voluntarily. The number of respondents was 105 in total. All responses were valid and could be used for the purposes of the thesis.

Due to the target group of the survey and convenience sampling, the average age of respondents was 21.91 ($SD = 2.30$). About 56% of the participants were female and 44% male. Nobody chose the option 'Other' or 'Prefer not to say'. 90% of the respondents were from Finland ($N = 95$) and only 10% ($N = 10$) from other countries. Approximately half of the respondents (50.5%) reported that they live alone in their household. Almost 30% were living with someone while 20% were living with two or three people. One person reported that they are living with 10 people.

3.5. Data analysis

IBM SPSS Statistics software was used to code and analyse the collected data. The data was analysed using descriptive statistics, for example frequencies. Also, reliability test was

used to determine whether certain survey questions measured the same construct reliably so the subscales could be created. In addition, independent samples t-test, correlation and regression analysis was conducted to test the hypotheses of the study.

4. FINDINGS

From the sample of 105, 104 people answered the question asking if they are motivated to reduce food waste. 79.8% of the valid answers reported that they think they are motivated to reduce food waste. However, the survey does not tell anything about the reasons why 20.2 per cent of the respondents are not motivated. Nevertheless, when people we're asked to estimate their avoidable food waste production compared to an average person, who produces 23 kilograms annually, almost 35 per cent of respondents answered "About the same" (Figure 2.). Also, over half of the respondents estimated that they produce (slightly or significantly) less than an average person. However, only about 10% said they produce slightly more than 23 kilograms. Nobody answered that they would produce significantly more than an average person.

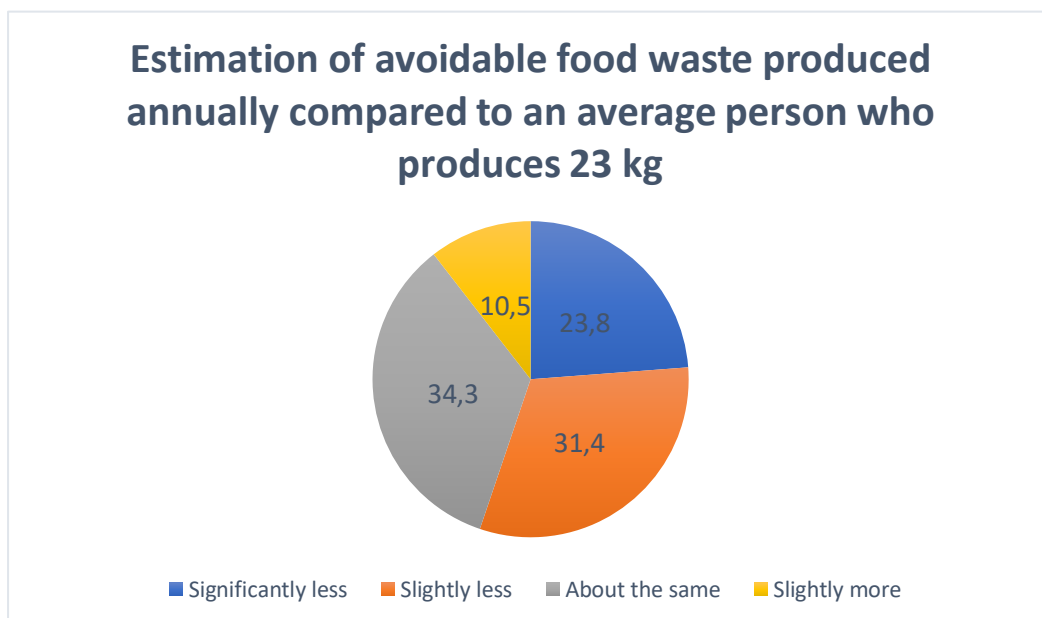


Figure 2.

When coming to the question, who is the most responsible for reducing food waste, the most frequent (83.3%) answer was "customers" (Figure 3.). Respondent was able to choose maximum three subjects out of six options. The two next frequent answers were "stores" (77.1%) and "restaurants" (64.8%). Like stated in the literature review, most food losses occur in the last stages of supply chain, so it seems that consumers are aware of it since nobody answered "farmers" and only 32.4% responded "food manufacturers". Also, 20 per cent of the respondents named government one of the most responsible ones.



Figure 3.

The survey indicates that food waste is considered mostly moral issue, as 31.4 per cent of the respondents ranked that alternative as the most accurate option. The second frequent first choice was “social issue” (28.6%) and third one “environmental issue” (24.8%). Only 15.2 per cent of the respondents considered food waste mostly “economic issues”. However, there were differences between the means and if they are compared, it turns out that food waste is regarded the least as environmental problem ($M = 2.00$, $SD = 1.29$) and the most as moral issue ($M = 2.79$, $SD = 1.05$) whereas social issue ($M = 2.71$, $SD = 1.03$) and economic issue ($M = 2.49$, $SD = .91$) ranked in the middle.

In addition, the five hypotheses were tested using different methods. H1 was tested using independent samples t-test. The test result was not significant ($t(102) = 0.79$, $p > 0.05$), but suggests a trend that women would produce less food waste than men (female: $M = 2.24$, $SD = .92$; male: $M = 2.39$, $SD = 1.00$).

H2 was tested with correlation. There was non-significant correlation of .12 ($p = \text{n.s.}$) between recycling and motivation to reduce food waste. On the other hand, 92.4% told that they recycle, so the number of people who do not recycle was very small. Also, H3 required

a correlation test. Almost 62 per cent (61.9%) of the respondents have had a job where they had to deal with food. The test revealed also non-significant correlation of .15 ($p = \text{n.s.}$) between motivation to reduce food waste and previous work experience that relates to dealing with food.

H4 was tested using independent samples t-test. The test result was again non-significant ($t(81) = -.79, p > .05$), but revealed a pattern suggesting that people living in bigger households (two or more persons, $M = 2.37, SD = .96$) waste more than people living alone ($M = 2.19, SD = 1.00$). 50,5% of the respondents were living alone and 49.5% with two or more people. H5 was also tested using independent samples t-test. The result was non-significant ($t(103) = -1.36, p > .05$), but suggest a trend that consumers following a special diet ($M = 2.08, SD = 0.83$) would produce less food waste than the ones who do not follow any special diet ($M = 2.38, SD = .98$). However, only 22.9 percent of the respondents were following a special diet, such as vegetarian, vegan, gluten free or lactose free, so $N(24)$ was quite small.

To test H6, four reliability tests was run to create subscales. The environmental motivator subscale consisted of two items ($\alpha = .90$), economic motivator subscale consisted of two items too ($\alpha = .87$), social motivator consisted of two items ($\alpha = .34$) and also moral motivator subscale consisted of two items ($\alpha = .65$). Multiple regression analysis was then used to test which motivator is the most important in terms of reducing food waste. The results showed that environmental motivator was the most important motivator to reduce food waste ($R^2 = .05, F(1,103) = 6.412, p < .01$). It seems that only environmental motivator predicted reduced amount of food waste ($\beta = -.22, p < .05$) since other variables (economic, social and moral motivators) were excluded.

In addition, most helpful ways to reduce food waste were identified using descriptive statistics. The results are summarized in figure 4. The results revealed that young consumers consider re-using leftover instead of throwing them away the most helpful way to reduce food waste ($M = 4.25, SD = .92$). Also, better shopping planning ($M = 3.96, SD = 1.00$) and better estimation of portion sizes and how much you should cook ($M = 3.91, SD = .88$) were regarded as helpful ways. On the other hand, food campaigns ($M = 2.92, SD = 1.06$) and improved kitchen technology ($M = 2.85, SD = 1.10$) were considered only slightly helpful ways to reduce food waste.

	Mean	Standard deviation
Re-using leftovers instead of throwing them away	4.25	.92
Better shopping planning	3.96	1.00
Better estimation on portion sizes and how much food you should cook	3.91	.88
Better understanding on how to interpret 'best before date' and 'use-by-date'	3.60	1.05
Mobile apps, e.g. ResQ Club	3.47	1.19
Availability of smaller packages in shops	3.32	1.16
Better and clearer information on food product labels, e.g. information on storage and preparation	3.30	.96
New regulations and policies	3.07	1.18
Food campaigns, e.g. Saa Syödä! (Help yourself!) or Ruokaa rippeistä (Food from leftovers)	2.92	1.06
Improved kitchen technology, e.g. smart fridges	2.85	1.10
Other	.23	.84

Figure 4.

5. DISCUSSION AND ANALYSIS

The aim of the thesis was to explore young adult consumers' motivation to reduce food waste and which motivators are the most important ones. Some findings are similar to the ones found in the existing literature and they support each other. Other findings have some differences with the previous studies. The hypotheses were tested, and they suggested many interesting trends although many results were non-significant.

5.1. Factors affecting food waste amount

First, most young adult consumers estimated that they produce annually less than 23 kilograms of food waste (the amount an average person produces). However, some studies (Hamilton et al., 2005; WRAP, 2009) have argued that young people waste more than older people. Nevertheless, newer studies (for example Koivupuro et al., 2014) have not found any correlation between food waste and age. These differences in studies may be caused by different measures used to estimate food waste. Some studies (Hamilton et al.) have measured wasted food in euros for example, and not in kilograms. Also, some studies may use the concept of food waste as a whole and not divide it into avoidable and unavoidable food waste.

In addition, perhaps in the past younger people have wasted more, but the case may not be that anymore. Food waste has been discussed recently much more than for example in the beginning of the 21st century. Consumers are aware of the problems associated to food waste and in general, sustainable development and eco-friendliness are trends. On the other hand, the amount of food waste was based on subjective estimations and usually social desirability bias affects the survey responses (Krumpal, 2013).

Also, there were three hypotheses (H1, H4 and H5) which were considering the amount of food waste. All the test results were non-significant (perhaps due to low number of respondents), so they might only illustrate a trend. H1 suggested that gender affects the estimations of the food waste amount and it turned out that men estimate the amount higher than women. This refers to the fact that men would waste more food, but it cannot be proven by this research. However, there is a lot of debate in this issue. For example, Buzby and

Guthrie (2002) cited in Secondi et al. (2015: 28) claimed that females waste more food. So, there is room for further research in this area.

H4 suggested that household size would affect the estimations of the amount of food waste. It seems that bigger households estimated that they produce more food waste than the ones who live alone, although the test were non-significant. However, this might be due to the fact that person who lives with other people also sees the amount other household members waste, so they might over-estimate the amount. Nevertheless, like stated in the literature review already, many studies have found a similar relationship between household size and the amount of food waste (Koivupuro et al., 2012; Quested et al., 2013; Parizeau et al., 2015).

H5 considered whether following a special diet had something to do with food waste amount. Although the test was non-significant, it suggested that people following a special diet would waste less food. This may be due to the fact that usually people who follow a special diet are more aware of what they eat and perhaps have to plan their shopping routines more. Hebrok and Boks (2017) argued that lack of planning is one of the key drivers of food waste. So, the special diet itself might not affect food waste levels but rather the activities related to it, such as more careful planning and shopping routines.

5.2. Motivators to reduce food waste

The majority of young adult consumers are motivated to reduce food waste which is a good starting point. On the other hand, it is not known whether they are significantly motivated or only a little. The research also studied if there are some factors, such as recycling (H2) and having a job related to food (H3), that affect the motivation to reduce food waste. Correlation between recycling and motivation, and having a job related to food and motivation were weak. Both factors need further research to be able to examine the relationship reliably.

Food waste was considered moral issue, rather than environmental issue for example. However, the most important motivator compared to food waste amounts was environmental motivators (result was significant) over economic motivators like predicted in H6. So, it seems that people who are motivated by environmental concerns, waste less than the ones

who are motivated by the economic motivators, such as saving money. Social motivators, such as being good at managing household, was the weakest motivator whereas moral (doing the right thing) and economic motivators were more important. It was interesting that although people consider food waste mostly moral issue, they are still motivated mostly by environmental motivators. On the other hand, many studies have found that environmental motivators are in fact the most ineffective motivators (Graham-Rowe et al., 2014; Neff et al., 2015; Hebrok and Boks, 2017). So, perhaps this relationship should be researched more.

In addition, it turned out that young adult consumers acknowledge that consumers are the most responsible ones to reduce food waste. However, they thought that stores and restaurants need to reduce food waste too. They also thought that government should have some responsibility to reduce food waste levels. On the other hand, there might be some differences if countries were compared. For example, if the study was conducted in developing countries rather than industrialized country, the respondents could have chosen farmers and food manufacturers the most responsible ones. This is due to the fact that in developing countries, most food waste occurs in the early stages of food supply chain rather than last stages (FAO, 2011).

5.3. Action to reduce food waste

When coming to the actions that would help consumers to reduce food waste, all actions asked were stated on average at least slightly helpful. Most helpful ways needed only consumer to change his/her own behaviour (re-using leftovers, better shopping planning). Also, the next most helpful ways (better estimation on portion sizes and better understanding on how to interpret “best-before” and “use-by” dates) were things that consumers can affect by themselves, but they also need guidance from a third party. Other ways to help consumers needs to be provided by a third party, such as mobile apps, smaller packages in shops, food campaigns and improved kitchen technology. Most people saw mobile apps useful, but not the kitchen technology. Also, food campaigns were only seen as moderately helpful, as well as new regulations and policies.

So, it seems that the actions should focus on emphasizing the fact that consumers can reduce food waste simply by changing their own behaviour, for example re-using leftovers

and planning more carefully. Also, it is important to give consumers clear information on food product labels and how to interpret them, but also practical tips how to prepare food the right amount or how to utilize leftovers. This information could be provided through mobile apps, for example, to utilize the new technology.

5.4. Limitations

This study has examined consumers motivation to reduce food waste. However, it has some limitations. Sample of this study consisted mostly on Finnish university students who study business. Also, the number of respondents were quite small ($N = 105$). Since the demographics of this sample are not comparable to the whole population, the results may not be applied to consider all young adult consumers in Finland (or elsewhere).

Also, most of the test were not statistically significant, so they only reveal patterns and trends that may not be correct. Also, the responses were subject and based on respondent's own estimations and perception, so there might be some biases in the responses. In addition, resources (such as time) were limited, which might affect the results and findings.

6. CONCLUSIONS

6.4. Main Findings

This paper has discussed the existing literature considering causes of food waste, its implications and motivation to reduce food waste. Empirical study was conducted to deepen the knowledge about consumer motivation to reduce food waste and different motivators. The main findings suggest that young adult consumers are aware of their responsibility to reduce food waste and most of them are motivated to reduce the amount of food waste produced. The most effective motivator seems to be environmental concerns and motivators related to it, so the motivating actions should be directed utilizing the fact. However, also moral motivators play a big role since food waste is mostly regarded as moral issue. After all, people should be motivated to change their own behaviour, for example re-using leftover and planning their shopping trips more carefully, and they should be provided with clear and coherent information about food product labels and portion sizes.

6.5. Implications for International Business

Although this research was conducted in Finland and concentrated on Finnish consumers, the same kinds of results can be found from other industrialized countries, especially from Nordic countries due to their similarity. The findings of this thesis can be utilized by organizations or companies aiming at motivating people to reduce food waste. The research suggest features that different food reduction programs should include. It also gives advice what information should be provided and how to educate people further. Also, mobile apps could be invented and developed to help consumers reducing food waste based on the information presented in this paper.

6.6. Suggestions for Further Research

This study left many further research points for future. Gender and household size's effects on the food waste production should be studied more to find relationship between them. Also, it should be studied whether following special diet influences food waste amount or is it due to better planning, for example. In addition, motivation needs further research, so we could understand better which factors affect it. The influence of recycling and having a job that relates to food in motivation should be addressed more to be able to make conclusions

regarding their relationships. Finally, it should be studied the relationship between food waste as a moral issue and the different motivators.

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APPENDICES

Appendix 1: Online survey

Motivation to reduce food waste

This survey is conducted as a part of my Bachelor's thesis at Aalto University. The purpose of the survey is to collect information about young adult consumers' motivation to reduce food waste. The responses are completely anonymous.

I know how precious time is so the survey will only take about 5 minutes to complete. I really hope you can answer the questions and help me with my thesis. I appreciate your input!

If you have any questions regarding the survey, please e-mail me susanna.pietila@aalto.fi



Age

Age

Gender

- ☐ Male
- ☐ Female
- ☐ Other
- ☐ Prefer not to say

Where are you from?

Select ▼

Next

Motivation to reduce food waste

How many people are living in your household?

State the number including yourself

Do you follow any special diets?

☐ Yes

☐ No

Previous

Next

Motivation to reduce food waste

What special diet do you follow?

☐ Vegetarian

☐ Vegan

☐ Gluten free

☐ Lactose free

☐ Other, what?

Previous

Next

Motivation to reduce food waste

Have you ever had a job where you had to deal with food?

☐ Yes

☐ No

Do you recycle?

☐ Yes

☐ No

Previous

Next

Motivation to reduce food waste

What do you recycle? Check all that apply.

- ☐ Metal
- ☐ Paper
- ☐ Cardboard
- ☐ Glass
- ☐ Plastic
- ☐ Bottles
- ☐ Batteries/bulbs
- ☐ Electronics
- ☐ Clothes
- ☐ Organic waste
- ☐ Other, what?

Previous

Next

Motivation to reduce food waste

An average person produces annually 23 kg of avoidable food waste which refers to the edible parts of food thrown away, e.g. slice of bread or plate residues (Foodspill 2010). Do you think the amount of food waste you produce annually is

- ☐ Significantly less
- ☐ Slightly less
- ☐ About the same
- ☐ Slightly more
- ☐ Significantly more

Previous

Next

Motivation to reduce food waste

Who do you think is the most responsible for reducing food wastage? You can select maximum three subjects.

- ☐ Consumers
- ☐ Stores
- ☐ Restaurants
- ☐ Food manufacturers
- ☐ Farmers
- ☐ Government

Please select maximum 3 options
Selected options: 0

Previous

Next

Motivation to reduce food waste

Do you think you are motivated to reduce food waste?

☐ Yes

☐ No

Do you consider food waste mostly as.. Rank the following items from the least accurate (1) to the most accurate (4)

1	Select ▼
2	Select ▼
3	Select ▼
4	Select ▼

Previous

Next

Motivation to reduce food waste

State the level of importance with the following motivators to reduce food waste

	Not at all important	Slightly important	Moderately important	Very important	Extremely important
Reducing my carbon footprint	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Being environmentally friendly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Saving money	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Having better control over my finances	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Being good at managing my household	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Realizing other people are also reducing it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feeling guilt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Doing the right thing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other, what?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Motivation to reduce food waste

State the level of helpfulness with the following elements in terms of reducing food waste

	Not at all helpful	Slightly helpful	Moderately helpful	Very helpful	Extremely helpful
Better understanding on how to interpret 'best before date' and 'use-by-date'	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Better and clearer information on food product labels, e.g. information on storage and preparation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Better shopping planning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Better estimation on portion sizes and how much food you should cook	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Availability of smaller packages in shops	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Re-using leftovers instead of throwing them away	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
New regulations and policies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Food campaigns, e.g. Saa Syödä! (Help yourself!) or Ruokaa rippeistä (Food from leftovers)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mobile apps, e.g. ResQ Club	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Improved kitchen technology, e.g. smart fridges	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other, what? <input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Thank you for your participation and have a nice day!



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Appendix 2: SPSS Output on hypothesis tests

H1: Gender affects the estimations of the amount of food waste produced annually.

T-Test

Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
An average person produces annually 23 kg of avoidable food waste which refers to the edible parts of food thrown away, e.g. slice of bread or plate residues (Foodspill 2010). Do you think the amount of food waste you produce annually is	Male	46	2,3913	,99952	,14737
	Female	58	2,2414	,92358	,12127

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference		Lower	Upper
An average person produces annually 23 kg of avoidable food waste which refers to the edible parts of food thrown away, e.g. slice of bread or plate residues (Foodspill 2010). Do you think the amount of food waste you produce annually is	Equal variances assumed	,992	,322	,793	102	,430	,14993	,18911		-,22517	,52502
	Equal variances not assumed			,796	92,936	,434	,14993	,19085		-,22907	,52893

H2: Young adult consumers who recycle are more motivated to reduce food waste.

Correlations

		Correlations	
		Do you recycle?	Do you think you are motivated to reduce food waste?
Do you recycle?	Pearson Correlation	1	,124
	Sig. (2-tailed)		,208
	N	105	104
Do you think you are motivated to reduce food waste?	Pearson Correlation	,124	1
	Sig. (2-tailed)	,208	
	N	104	104

H3: Young adult consumers who have had a job where they had to deal with food are more motivated to reduce food waste than the ones who have not.

Correlations

		Correlations	
		Have you ever had a job where you had to deal with food?	Do you think you are motivated to reduce food waste?
Have you ever had a job where you had to deal with food?	Pearson Correlation	1	,155
	Sig. (2-tailed)		,117
	N	105	104
Do you think you are motivated to reduce food waste?	Pearson Correlation	,155	1
	Sig. (2-tailed)	,117	
	N	104	104

H4: Household size affects the estimations of the amount of food waste produced annually.

T-Test

[DataSet1] C:\Users\Susanna\Documents\School\Thesis\Motivation to reduce food waste_Perusraportti.sav

Group Statistics					
How many people are living in your household?: State the number including yourself		N	Mean	Std. Deviation	Std. Error Mean
An average person produces annually 23 kg of avoidable food waste which refers to the edible parts of food thrown away, e.g. slice of bread or plate residues (Foodspill 2010). Do you think the amount of food waste you produce annually is	1,00	53	2,1887	1,00109	,13751
	2,00	30	2,3667	,96431	,17606

Independent Samples Test									
		Levene's Test for Equality of Variances		t-Test for Equality of Means					
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower Upper
An average person produces annually 23 kg of avoidable food waste which refers to the edible parts of food thrown away, e.g. slice of bread or plate residues (Foodspill 2010). Do you think the amount of food waste you produce annually is	Equal variances assumed	,002	,963	-.788	81	,433	-.17799	,22575	-.62716 ,27119
	Equal variances not assumed			-.797	62,254	,429	-.17799	,22339	-.62451 ,26854

H5: Young adult consumers who follow special diet produce less food waste than the ones who do not follow any special diet.

T-Test

Group Statistics					
Do you follow any special diets?		N	Mean	Std. Deviation	Std. Error Mean
An average person produces annually 23 kg of avoidable food waste which refers to the edible parts of food thrown away, e.g. slice of bread or plate residues (Foodspill 2010). Do you think the amount of food waste you produce annually is	Yes	24	2,0833	,82970	,16936
	No	81	2,3827	,98194	,10910

Independent Samples Test										
		Levene's Test for Equality of Variances							t-test for Equality of Means	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
An average person produces annually 23 kg of avoidable food waste which refers to the edible parts of food thrown away, e.g. slice of bread or plate residues (Foodspill 2010). Do you think the amount of food waste you produce annually is	Equal variances assumed	4,452	,037	-1,356	103	,178	-,29938	,22080	-,73729	,13852
	Equal variances not assumed			-1,486	43,879	,144	-,29938	,20146	-,70544	,10667

H6: Economic motivators are the most important motivators to reduce food waste among young adult consumers.

Regression

Descriptive Statistics

	Mean	Std. Deviation	N
An average person produces annually 23 kg of avoidable food waste which refers to the edible parts of food thrown away, e.g. slice of bread or plate residues (Foodspill 2010). Do you think the amount of food waste you produce annually is	2,3143	,95388	105
COMPUTE MotivEnvironmental (IMPRedCarbFootprint+IMPBeEnvFriendly)/2	3,8429	1,07488	105
COMPUTE MotivEconomic (IMPSavMoney+IMPContOverFinances)/2	3,5905	1,08703	105
COMPUTE MotivSocial (IMPBeGoodManagHousehold+IMPOtherPeopleReduceAlso)/2	2,9667	,76982	105
COMPUTE MotivMoral (IMPFeelGuilt+IMPDoRightThing)/2	3,2143	,89027	105

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	COMPUTE MotivEnvironmental (IMPRedCarbFootprint+IMPBeEnvFriendly)/2		Stepwise (Criteria: Probability-of-F-to-enter <= ,050, Probability-of-F-to-remove >= ,100).

a. Dependent Variable: An average person produces annually 23 kg of avoidable food waste which refers to the edible parts of food thrown away, e.g. slice of bread or plate residues (Foodspill 2010). Do you think the amount of food waste you produce annually is

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,242 ^a	,059	,049	,92999

a. Predictors: (Constant), COMPUTE MotivEnvironmental (IMPRedCarbFootprint+IMPBeEnvFriendly)/2

Excluded Variables^a

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics Tolerance
1	COMPUTE MotivEconomic (IMPSavMoney+IMPContOverFinances)/2	-,004 ^b	-,044	,965	-,004	,991
	COMPUTE MotivSocial (IMPBeGoodManagHoushold+IMPOtherPeopleReduceAlso)/2	-,043 ^b	-,449	,655	-,044	,996
	COMPUTE MotivMoral (IMPFeelGuilt+IMPDoRig htThing)/2	-,130 ^b	-1,306	,194	-,128	,921

a. Dependent Variable: An average person produces annually 23 kg of avoidable food waste which refers to the edible parts of food thrown away, e.g. slice of bread or plate residues (Foodspill 2010). Do you think the amount of food waste you produce annually is

b. Predictors in the Model: (Constant), COMPUTE MotivEnvironmental (IMPRedCarbFootprint+IMPBeEnvFriendly)/2

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5,546	1	5,546	6,412	,013 ^b
	Residual	89,083	103	,865		
	Total	94,629	104			

a. Dependent Variable: An average person produces annually 23 kg of avoidable food waste which refers to the edible parts of food thrown away, e.g. slice of bread or plate residues (Foodspill 2010). Do you think the amount of food waste you produce annually is

b. Predictors: (Constant), COMPUTE MotivEnvironmental (IMPRedCarbFootprint+IMPBeEnvFriendly)/2

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	3,140	,338		9,278	,000			
	COMPUTE MotivEnvironmental (IMPRedCarbFootprint+IMPBeEnvFriendly)/2	-,215	,085	-,242	-2,532	,013	-,242	-,242	-,242

a. Dependent Variable: An average person produces annually 23 kg of avoidable food waste which refers to the edible parts of food thrown away, e.g. slice of bread or plate residues (Foodspill 2010). Do you think the amount of food waste you produce annually is